WE CLAIM

1. A video coding system, comprising:

a transform unit to code pixel data of a plurality of blocks as transform coefficients,

a splitter to generate, from each block, a first sub-block including a preselected number of low frequency transform coefficients and a second sub-block including remaining transform coefficients,

run length encoders for each of the first and second sub-blocks, and

variable length coders for each of the first and second sub-blocks.

2. The video coding system of claim 1, further comprising storage in which coded first sub-blocks of a frame are stored in a first portion of a file and coded second sub-blocks of the frame are stored in a second portion of the file.

3. The video coding system of claim 1, further comprising storage in which coded first sub-blocks of a plurality of frames from a video sequence are stored in a first portion thereof and coded second sub-blocks of the frames from the video sequence are stored in a second portion thereof.

4. The video coding system of claim 1, wherein, for the low frequency sub-blocks, the run length encoder codes a pair of low frequency sub-blocks together according to a scan pattern that

progresses across a first of the low frequency sub-blocks in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,

advances to a highest frequency coefficient of the second low frequency sub-block, and

progresses across the second low-frequency sub-block from the highest frequency coefficient to the lowest frequency coefficient in a zig-zag.

5. A video coding system, comprising:

a transform unit to code pixel data of a plurality of blocks as transform coefficients,

a splitter to generate, from each block, a first sub-block including a preselected number of low frequency transform coefficients and a second sub-block including remaining transform coefficients, and

a pair of variable length coders, one for each of the first and second sub-blocks.

6. The video coding system of claim 5, wherein one of the variable length coders comprises a code unit and a set of selectable variable length assignments.

7. The video coding system of claim 5, further comprising storage in which coded first sub-blocks of a frame are stored in a first file thereof and coded second sub-blocks of the frame are stored in a second file thereof.

8. The video coding system of claim 5, further comprising storage in which coded first sub-blocks of a plurality of frames from a video sequence are stored in a first file thereof and coded second sub-blocks of the frames from the video sequence are stored in a second file thereof.

9. A video coding method, comprising:

organizing each frame of input video into a plurality of blocks of pixels,

for each block:

coding the block as a plurality of coefficients according to a predetermined transform,

quantizing the block of coefficients according to a quantization parameter,

extracting from each block a sub-set of coefficients,

coding the extracted coefficients according to run length coding and variable length coding and storing the result therefrom in a first file,

coding the remaining coefficients according to run length coding and variable length coding and storing the results therefrom in a second filed separate from the first file.

10. The video coding method of claim 9, wherein the transform is a discrete cosine transform.

11. The video coding method of claim 9, wherein the transform is wavelet decomposition.

12. The video coding method of claim 9, further comprising for at least one block, predicting image data of the block from a neighboring block.

13. The video coding method of claim 9, wherein each frame in a video sequence is coded as an intra coded frame.

14. The video coding method of claim 9, wherein the input video data is obtained from a video capture device.

15. The video coding method of claim 9, wherein the input video data is obtained from decoding of predictively coded data.

16. The video coding method of claim 9, wherein the run length coding of the extracted coefficients comprises run length coding extracted coefficients of a pair of blocks according to a scan direction that:

progresses across a first of the low frequency sub-blocks in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,

advances to a highest frequency coefficient of the second low frequency sub-block, and

progresses across the second low-frequency sub-block from the highest frequency coefficient to the lowest frequency coefficient in a zigzag.

17. A computer readable medium having stored thereon coded video data generated from a process, comprising:

organizing each frame of input video into a plurality of blocks of pixels,

for each block:

coding the block as a plurality of coefficients according to a predetermined transform,

quantizing the block of coefficients according to a quantization parameter,

extracting from each block a sub-set of coefficients,

coding the extracted coefficients according to run length coding and variable length coding and storing the result therefrom in a first file,

coding the remaining coefficients according to run length coding and variable length coding and storing the results therefrom in a second filed separate from the first file,

wherein the coded data representing the extracted coefficients are stored in a discrete area of the computer readable medium to be accessed separately from the coded data representing the remaining coefficients.

18. The medium of claim 17, wherein, for the blocks of extracted coefficients, the run length encoding codes a pair of blocks together according to a scan pattern that

progresses across a first block in a zig-zag from a lowest frequency coefficient to a highest frequency coefficient therein,

advances to a highest frequency coefficient of the second block, and

progresses across the second block from the highest frequency coefficient to the lowest frequency coefficient in a zig-zag.

19. The medium of claim 17, wherein the coded data representing the extracted coefficients of multiple frames from a video sequence are stored together on a first portion of the medium coded data representing the remaining coefficients are stored on a second portion thereof.

20. A computer readable medium storing program instructions that when executed cause an executing device to:

organizing each frame of input video into a plurality of blocks of pixels,

for each block:

coding the block as a plurality of coefficients according to a predetermined transform,

quantizing the block of coefficients according to a quantization parameter,

extracting from each block a sub-set of coefficients,

coding the extracted coefficients according to variable length coding and storing the result therefrom in a first portion of storage,

coding the remaining coefficients according to variable length coding and storing the results therefrom in a second portion of storage separate from the first portion.

21. The medium of claim 20, wherein the coded data representing the extracted coefficients of multiple frames from a video sequence are stored together on a first portion of the storage coded data representing the remaining coefficients are stored on a second portion thereof.

22. A video decoder, comprising:

independent coding chains, comprising a variable length decoder having an input for coded video data and a run length decoder having an input coupled to an output from the variable length decoder, wherein:

a first coding chain is dedicated to decoding of first coded video data representing source video sequence of a small size, and

a second coding chain is dedicated to decoding of second coded video data that, when decoded in conjunction with decoding of the first coded video data, represent the source video sequence of a full size;

a multiplexer having an input coupled to outputs of the coding chains, and

an inverse transform unit coupled to an input of the multiplexer.

23. The video decoder of claim 22, further comprising a control input to the coding chains to determine whether to disable the second coding chain.

24. The video decoder of claim 22, wherein the inverse transform unit is an inverse discrete cosine transform unit.

25. The video decoder of claim 22, wherein the inverse transform unit is an inverse wavelet transform unit.

26. A video decoding method, comprising:

retrieving from storage a first data file storing coded video data representative of a small sized image,

decoding the coded data from the first data file to obtain blocks of coefficients therefrom,

when a control signal indicates that full-size decoding is to be performed:

retrieving from storage a second data file storing coded supplemental video data of the image,

decoding the coded data from the second data file to obtain blocks of supplemental coefficients therefrom,

merging the coefficients and the supplemental coefficients on a block-by-block basis,

generating pixel data from the blocks of merged coefficients according to an inverse transform.

27. The video decoding method of claim 26, further comprising, when the control signal indicates that full-size decoding is not to be performed, generating pixel data from the blocks of coefficients.

28. The video decoding method of claim 26, wherein the inverse transform is an inverse discrete cosine transform.

29. The video decoding method of claim 26, wherein the inverse transform is an inverse wavelet transform.

30. The video decoding method of claim 26, wherein the decoding of coded data in the first data file comprises decoding variable length coded data by direct computation.

31. A run length coding consumption method, comprising:

consuming a first run value;

iteratively:

determining a current consumption position,

unless the current consumption position is within one of an end position:

consuming a level value and a next run value, and

performing a next iteration,

unless the current consumption position is at the end run position, consuming a final level value.

32. The method of claim 31, wherein the run values advance the current consumption position across a single block of data according to a zigzag scan direction.

33. The method of claim 31, wherein the run values advance. the current consumption position across a pair of blocks of data according scan direction that:

proceeds from an origin of a first block according to a zigzag scan direction, across the first block and arriving at a terminal coefficient position therein,

advances to an initial coefficient position in the second block that corresponds to the terminal coefficient position of the first block, and

proceeds from the initial coefficient position of the second block to an origin of the second block according to a zigzag scan direction.

34. The method of claim 31, further comprising, when the method is to be performed upon an irregular array of coefficients:

providing a regular array sized to fit the irregular array of coefficients, and

providing dummy zero values in any location of the regular array that is not occupied by coefficient values from the irregular array.